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Basin Outlook Reports

and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

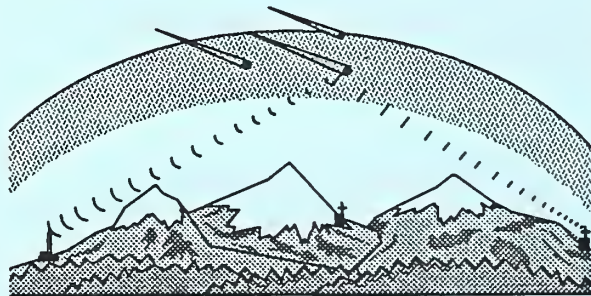
Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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Basin Outlook Reports

June 1, 1992



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United States
Department of
Agriculture

Soil
Conservation
Service



William (Bill) Richards
Chief
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Issued by

Released by

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In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.



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WASHINGTON WATER SUPPLY OUTLOOK

JUNE 1992

GENERAL OUTLOOK:

WASHINGTON Water Supply Outlook Report as of June 1, 1992:
** NOTE ** Please return your questionnaire for next year's report. With the above normal temperatures and below normal snowpack continuing, drought conditions have been declared in the Okanogan and Ahtanum basins. May had below normal precipitation with 18% of normal statewide. It varied from 10% of average in the Okanogan Basin to 44% in the Spokane Basin. Year-to-date precipitation is 83% statewide and varies from 61% in the Okanogan to 94% in the Walla Walla Basin. Temperatures varied from four degrees above in the Seattle area to one degree above in the Yakima Basin. Low elevation snowpack is gone, with snow remaining on only six of the 38 SNOTEL sites. The snowpack varies from 0% of normal in the Elwah River Basin to 44% in the Wenatchee Basin. Washington's SNOTEL sites were averaging 20% of normal snowpack on June 1 (by June 5, it was 11%), down from 45% a month ago. Forecasts for 1992 runoff vary from 80% of average for the Stehekin River to 18% for the Grande Ronde River in Walla Walla Basin. May streamflows varied from 35% of normal on the Walla Walla River near Milton-Freewater, Oregon, to 185% on the Similkameen River. June 1 reservoir storage is generally good, with reservoirs in the Yakima Basin at 98 % of average and 87% of capacity.

SNOWPACK:

Warm weather continued over Washington during May, causing further deterioration in the mountain snowpack. Statewide SNOTEL sites in Washington have a snowpack 20% of average for June 1, down from 45% last month. Maximum snow water content of 23.6 inches was measured at Lyman Lake SNOTEL in the Chelan Basin. This site would normally have 43.3 inches of water content on June 1. Snowpack varies over the state from 44% of normal in the Wenatchee Basin to 0% in the Elwah River area of the Olympic Basin, and several other watersheds around the state. Snowpack along the west slopes of the Cascade Mountains includes the Green River with 0%, the Lewis River 19% and the Skagit 34%. Snowpack in the Okanogan is at 6%, and the Yakima is at 1% of normal.

PRECIPITATION:

May precipitation from National Weather Service stations was 18% of average statewide. The year-to-date precipitation statewide is 83%, and varied from 94% of normal in the Walla Walla Basin to 61% in the Okanogan Basin. May precipitation varied from 10% of average in the Okanogan Basin, to 46% in the Colville Basin. SNOTEL sites in Washington showed high elevation year-to-date precipitation values to be 83%. Maximum year-to-date precipitation was at the June Lake SNOTEL site near Mt. St. Helens, with 114.7 inches since October 1, 1991. Normal for this site would be 150.3 inches.

RESERVOIR:

Reservoir storage in Washington is generally good for June 1. Reservoir storage in the Yakima Basin was 915,700 acre feet, 98% of normal. Storage at other reservoirs includes Roosevelt at 121% of average. The Okanogan reservoirs are at 84% of normal for June 1, and are being drafted for irrigation. The power generation reservoirs include the following: Coeur d'Alene Lake, 283,200 acre feet, or 97% of capacity; Chelan Lake, 464,300 acre feet, 103% of average and 69% of capacity, and Ross Lake at 1,186,500 acre feet and 106% of average, and 79% of capacity.

STREAMFLOW:

Forecasts for summer streamflow are for below to much below average and vary from 80% of average for Stehekin River to 18% of normal for Grande Ronde River in the Walla Walla River Basin. May forecasts for some west side streams include: Cedar River, 53% down from 70% last month; Skagit River, 74%; and the Dungeness River, 61%. Some east side streams include the Yakima River at Parker, 41%; the Okanogan River at Tonasket, 54% up from 46% last month; and the Colville River at 42%. May streamflows varied throughout Washington, with near normal flows in the north half of the state and below normal in the southern part. The Columbia River at Birchbank was at 100% of normal, the highest in the state. The Columbia River at The Dalles, was 80%. Other stream had the following percent of normal flow: the Okanogan River, 65%; the Walla Walla River, which at 11% was the lowest in the state; the Spokane River, 36%; the Yakima at the Parker, 51%; the Wenatchee River at 87%, the Chelan River; 99%, and the Methow at 127%. The Cowlitz River was 53% of normal.

CONSERVE YOUR IRRIGATION WATER

Can irrigators use less water and get good yields? We think so. With energy costs on an upward spiral and water shortages likely, we offer these water saving ideas to irrigators.

Consider ditch lining or gated pipe. This will reduce the 10-90% loss which occurs in earth ditches.

Keep ditches clean and free from weeds, sediment or other debris, which can slow water velocity, affect delivery rate, and increase evaporation.

Make sure head gates, drop structures, and pipe inlets are operational. A washed out structure is water lost.

Inspect ditch banks for rodent damage. Rodent holes cause leakage or failures.

Make sure sprinkler nozzles are not worn or leaky. Check pipe connections and valves to prevent leaks.

Operate sprinklers at recommended pressure to effectively use available water.

Maintain your pump at peak efficiency to save energy.

BETTER WATER MANAGEMENT

Better water management may require more labor. It may require changing a head of water in the middle of the night. But it will be worth it. You should:

Measure your water to determine how much is applied.

Consider alternate row irrigation for crops planted in furrows.

Plan short runs. Match stream size and velocity to soil intake rate and capacity.

Catch and reuse tail water where possible.

Under irrigate the lower end of the field to stretch your water.

When water is short, consider eliminating that last irrigation.

Soil Conservation Service personnel can:

Help plan and design new irrigation systems or evaluate existing ones. Provide technical assistance for land leveling, pipeline installation, and other practices.

KNOW YOUR SOILS

Soil absorbs irrigation water at a given rate. This varies with each soil type. Some crops require more water than others. Check soil moisture by spade, probe, or moisture meter. Or use the "feel" method.

WHEN IRRIGATION IS NEEDED SOIL WILL FEEL AND ACT THIS WAY

Soil Texture	A handful of soil will
Coarse	Tend to stick together slightly, but will not form a ball
Medium	Be crumbly, but will form a ball
Fine	be pliable, and will form a ball.

If you have a conservation plan on your farm, or if the soil in your area has been mapped, the Soil Conservation Service can crosscheck soil type and irrigation data and provide you with the water holding capacity of your soil for a given crop.

RANCHING TIPS FOR WATER-SHORT YEARS

Forage production on range and dry pasture depends entirely on natural moisture. While overgrazing does damage to perennial plants during a season of normal moisture, it is more severe during a drought year. It reduces plant vigor, stops root and leaf growth, reduces ground cover, and invites accelerated erosion. Once erosion begins, it gets worse each year, further reducing plant vigor and forage production. This process is difficult to reverse.

Rather than risk permanent damage to grazing resources start planning a strategy early. For example:

- reduce livestock numbers to balance with forage supply
- cull herds more than normal
- sell calves and lambs early
- determine forage needs and buy needed supplements early
- grow small grains or sorghums for hay or pasture (these use less water than conventional forage crops)
- defer planting perennial pasture, hay or range seedings until a year with more favorable water outlook
- keep spring developments, stock tanks, float valves and pipeline in good working order so water is not wasted
- use evaporation retardant on ponds and tanks
- prepare for hauling stock water
- give spring development high priority (even mediocre springs will be helpful)
- check with local SCS and ASCS offices to learn if cost-share programs are available to help with spring developments or other water conservation practices
- don't overgraze or otherwise disturb streambank vegetation (it will help prevent erosion, reduce sediment, and provide food and cover for wildlife)

Remember, if a unit must be abused, well-established seedings can tolerate overgrazing better than native range.

Wildlife will suffer during a drought as much or more than domestic livestock. The wildlife that share your land is a valuable natural resource.

To help wildlife:

- include features at stock water developments which will allow small animals and birds safe access to water (these are usually not expensive and are easily installed)
- fence ponds and springs and install collector pipes to deliver water to a tank or trough. This will improve water quality and quantity for livestock, as well as provide lush vegetation for small animals and birds.

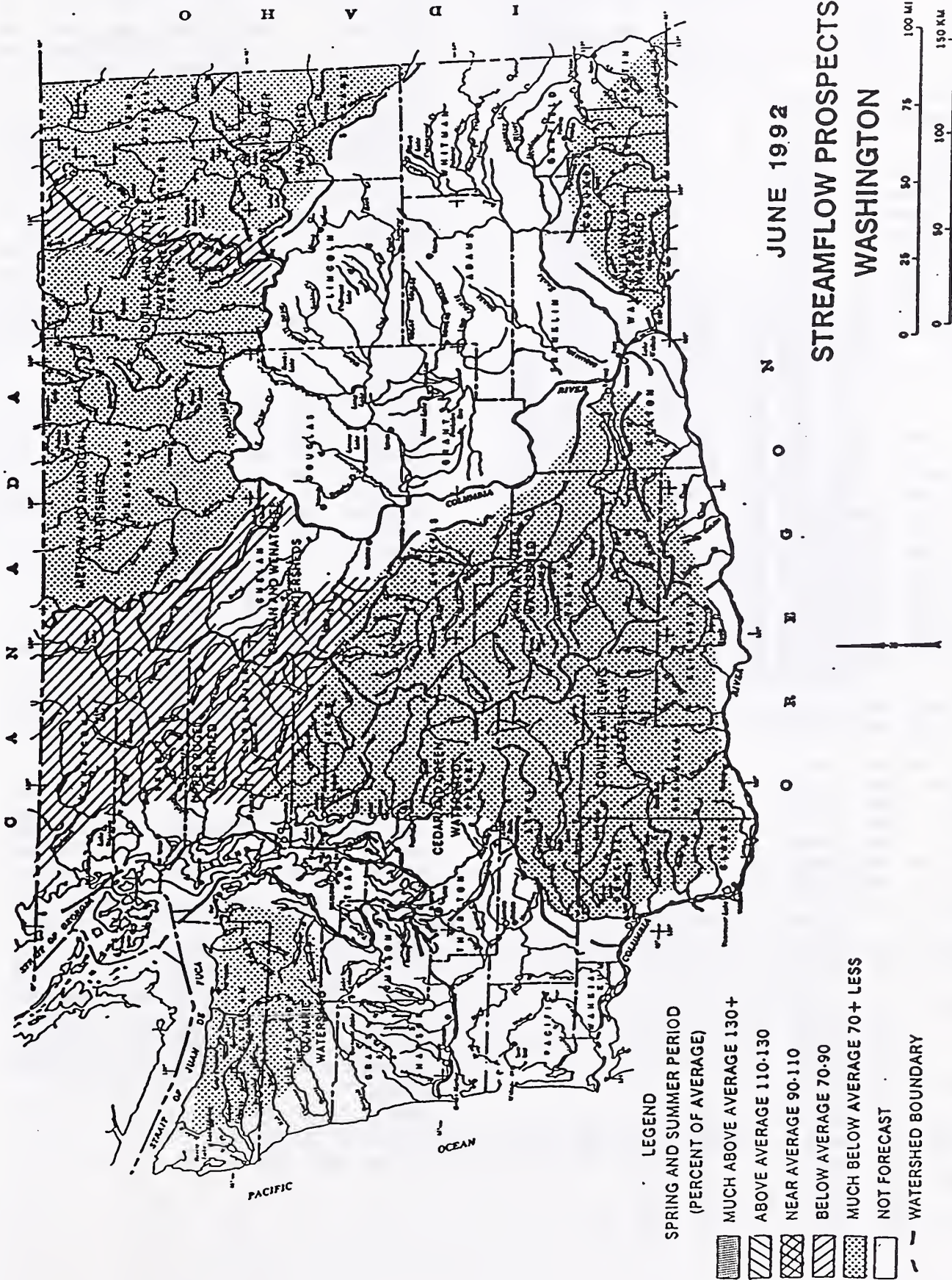
Other places for information or assistance:

- check with local ASCS office for possible special practices or cost-sharing that might assist with irrigation on your farm or ranch this year.
- maintain contact with Farmers Home Administration for special local programs available.

- maintain contact with the local Cooperative Extension Service office for agricultural and marketing conditions.

If you belong to an irrigation district, contact irrigation officials throughout the season to learn about current water availability and water supply forecasts.

For more information concerning your crop, and soil and water conditions, contact the local Conservation District Office.



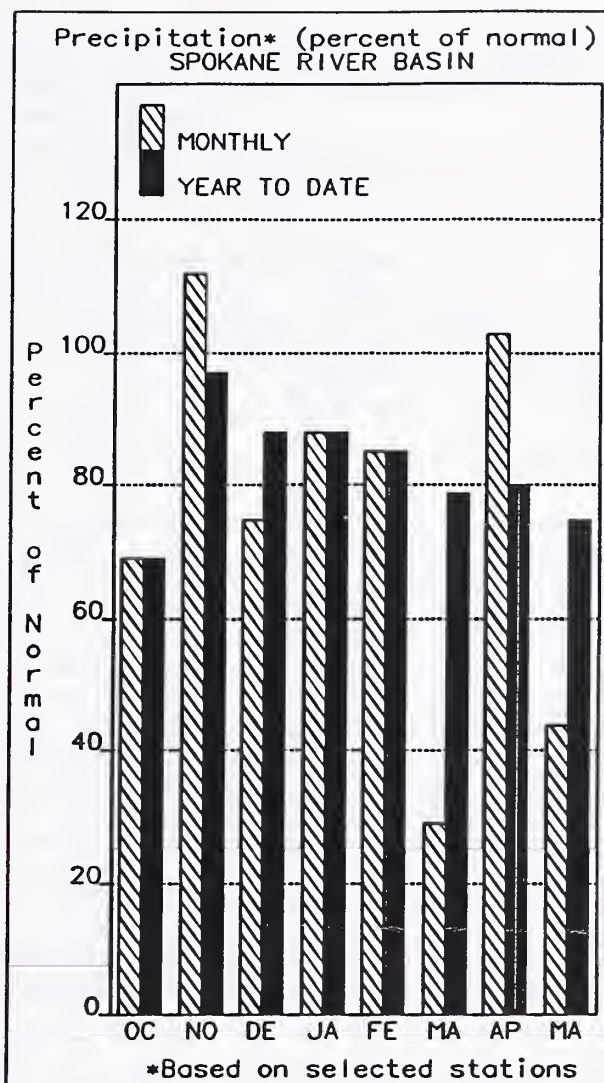
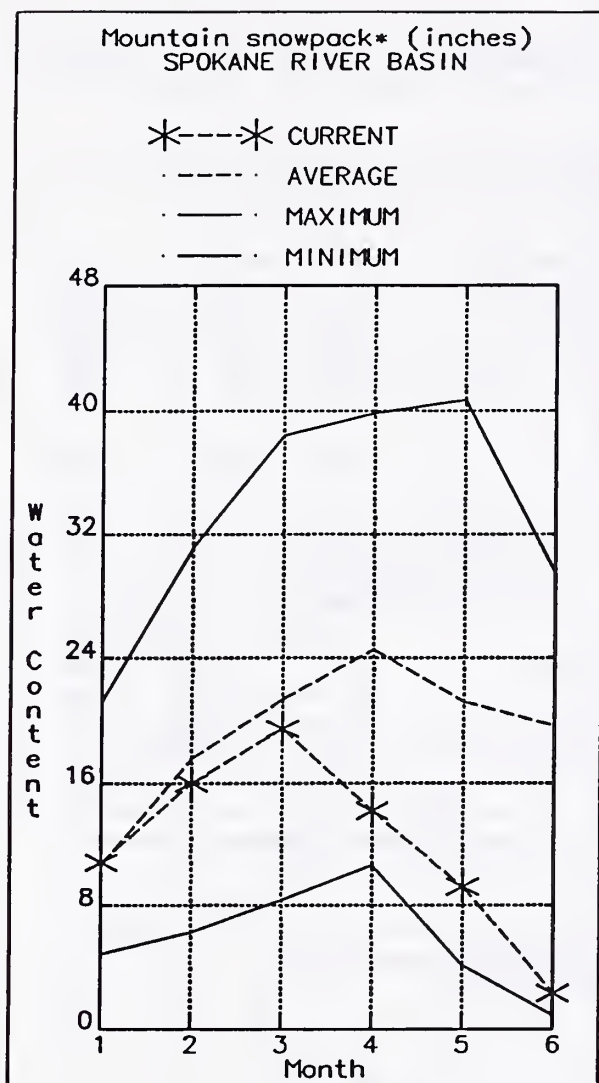
SOURCE: Data compiled by SCS
Field Personnel

BASIN SUMMARY OF SNOW COURSE DATA

JUNE 1992

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
<hr/>						
YAKIMA RIVER						
BIG BOULDER CREEK	3200	6/01/92	---	.0e	--	--
BLEWETT PASS#2PILLOW	4270	6/01/92	---	.0s	.0	.0
BUMPING LAKE	3450	6/01/92	---	.0e	--	--
BUMPING LAKE (NEW)	3400	6/01/92	---	.0e	--	--
BUMPING RIDGE PILLOW	4600	6/01/92	---	.0s	7.2	6.3
CORRAL PASS PILLOW	6000	6/01/92	---	1.5s	33.1	19.6
FISH LAKE PILLOW	3370	6/01/92	---	.0s	.0	5.0
GREEN LAKE PILLOW	6000	6/01/92	---	.0s	1.5	3.8
GROUSE CAMP PILLOW	5380	6/01/92	---	.0s	.0	.0
MORSE LAKE PILLOW	5400	6/01/92	---	.0s	39.6	21.4
OLALLIE MOWS PILLOW	3960	6/01/92	---	.0s	35.8	30.0
SASSE RIDGE PILLOW	4200	6/01/92	---	.0s	.0	1.3
STAMPEDE PASS PILLOW	3860	6/01/92	---	.0s	3.9	15.0
TUNNEL AVENUE	2450	6/01/92	---	.0e	--	2.7
WHITE PASS ES PILLOW	4500	6/01/92	---	.0s	1.0	4.6
ANTANUM CREEK						
GREEN LAKE PILLOW	6000	6/01/92	---	.0s	1.5	3.8
MILL CREEK						
HIGH RIDGE PILLOW	4980	6/01/92	---	.0s	.0	.6
TOUCHET #2 PILLOW	5530	6/01/92	---	.0	.0	--
LEWIS - COULITZ RIVERS						
JUNE LAKE PILLOW	3200	6/01/92	---	.0s	.0	.0
LONE PINE PILLOW	3800	6/01/92	---	.0s	9.0	9.4
PARADISE PARK PILLOW	5500	6/01/92	---	18.0s	78.2	48.1
PIGTAIL PEAK PILLOW	5900	6/01/92	---	5.9s	56.0	37.5
POTATO HILL PILLOW	4500	6/01/92	---	.0s	.9	1.1
SHEEP CANYON PILLOW	4050	6/01/92	---	.0s	6.0	11.6
SPENCER MOW PILLOW	3400	6/01/92	---	.0s	.0	.0
SPIRIT LAKE PILLOW	3100	6/01/92	---	.0s	.0	.0
SURPRISE LKS PILLOW	4250	6/01/92	---	.0s	9.5	14.5
WHITE PASS ES PILLOW	4500	6/01/92	---	.0s	1.0	4.6
WHITE RIVER						
CORRAL PASS PILLOW	6000	6/01/92	---	1.5s	33.1	19.6
MORSE LAKE PILLOW	5400	6/01/92	---	.0s	39.6	21.4
GREEN RIVER						
COUGAR MTH. PILLOW	3200	6/01/92	---	.0s	.0	.0
GRASS MOUNTAIN #2	2900	5/31/92	0	.0	.0	--
LESTER CREEK	3100	5/31/92	0	.0	.0	--
LYNN LAKE	4000	5/31/92	0	.0	1.8	--
SAMMILL RIDGE	4700	5/31/92	0	.0	6.3	16.6
STAMPEDE PASS PILLOW	3860	6/01/92	---	.0s	3.9	15.0
TWIN CAMP	4100	5/31/92	0	.0	.0	--
SNOQUALMIE RIVER						
OLALLIE MOWS PILLOW	3960	6/01/92	---	.0s	35.8	30.0
SKYKOMISH RIVER						
STAMPEDE PASS PILLOW	3860	6/01/92	---	.0s	3.9	15.0
STEVENS PASS PILLOW	4070	6/01/92	---	.0s	14.4	5.7
SKAGIT RIVER						
BEAVER CREEK TRAIL	2200	5/28/92	0	.0	.0	--
BEAVER PASS	3680	5/28/92	0	.0	15.9	--
BROWN TOP AM	6000	5/28/92	40	22.6	71.8	--
DEVILS PARK	5900	5/28/92	28	15.8	61.2	31.8
FREEZEOUT CK. TRAIL	3500	5/28/92	0	.0	.0	--
HARTS PASS	6500	5/29/92	28	15.2e	50.5	--
HARTS PASS PILLOW	6500	6/01/92	---	1.6s	63.7	25.3
LYNN LAKE PILLOW	5900	6/01/92	---	23.6s	84.4	43.3
MEADOWS CABIN	1900	5/28/92	0	.0	.0	--
NEW HOZOMEEN LAKE	2800	5/28/92	0	.0	.0	--
RAINY PASS	4780	5/29/92	28	13.5	26.4	--
RAINY PASS PILLOW	4780	6/01/92	---	5.5s	44.2	20.4
THUNDER BASIN	4200	5/28/92	0	.0	14.0	10.0
QUILCENE RIVER						
MOUNT CRAG PILLOW	4050	6/01/92	---	.0s	.0	--

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
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PEND OREILLE RIVER						
BUNCHGRASS MEADOWS	5000	6/01/92	---	.0E	5.6	1.1
BUNCHGRASS MOWPILLOW	5000	6/01/92	---	.0	11.8	16.2
MOODOO BASIN	6050	6/01/92	---	14.0E	41.0	32.9
MOODOO CREEK	5900	6/01/92	---	10.3E	37.9	31.9
KETTLE RIVER						
BIG WHITE MTH CAN.	5510	5/28/92	0	.0	10.9	8.9
FARROW CAN.	4000	5/29/92	0	.0	.0	.3
SPOKANE RIVER						
LOST LAKE	6110	6/01/92	---	5.1E	53.0	41.6
MOSQUITO RIDGE	5200	6/01/92	---	.0E	12.0	--
MOSQUITO PILLOW	5200	6/01/92	---	.0	11.2	16.0
SUNSET	5540	6/01/92	---	.0E	22.5	--
SUNSET PILLOW	5540	6/01/92	---	.0	25.4	20.7
NEUMAN LAKE						
QUARTZ PEAK PILLOW	4700	6/01/92	---	.0	.0	.0
OKANOGAN RIVER						
ABERDEEN LAKE CAN.	4300	6/01/92	---	.0e	--	--
BLACKHALL PEAK CAN.	6370	5/30/92	---	.0E	--	26.2
ENDERBY CAN.	6200	6/01/92	36	15.4	46.8	39.0
FREEZEOUT CK. TRAIL	3500	5/28/92	0	.0	.0	--
HAMILTON HILL CAN.	4890	6/01/92	---	.0e	.2	1.3
HARTS PASS	6500	5/29/92	28	15.2e	50.5	--
HARTS PASS PILLOW	6500	6/01/92	---	1.6s	63.7	25.3
MCCULLOCH CAN.	4200	6/01/92	---	.0e	--	.3
MISSEZULA MTH CAN.	5090	6/01/92	---	.0e	.0	--
MT. ROBAY CAN.	5900	5/30/92	0	.0	3.7	5.0
MUTTON CREEK #1	5700	6/01/92	---	.0e	--	--
POSTILL LAKE CAN.	4500	6/01/92	---	.0e	--	--
SALMON MOWS PILLOW	4500	6/01/92	---	.0s	.0	.0
SILVER STAR MTH CAN.	6000	5/30/92	7	3.6	23.1	16.9
TROUT CREEK CAN.	4690	6/01/92	---	.0e	--	4.5
METNOM RIVER						
HARTS PASS	6500	5/29/92	28	15.2e	50.5	--
HARTS PASS PILLOW	6500	6/01/92	---	1.6s	63.7	25.3
MUTTON CREEK #1	5700	6/01/92	---	.0e	--	--
SALMON MOWS PILLOW	4500	6/01/92	---	.0s	.0	.0
CHELAN LAKE BASIN						
LYNN LAKE PILLOW	5900	6/01/92	---	23.6s	84.4	43.3
MINERS RIDGE PILLOW	6200	6/01/92	---	9.3s	67.6	--
PARK CK RIDGE PILLOW	4600	6/01/92	---	.0s	25.7	5.2
RAINY PASS	4780	5/29/92	28	13.5	26.4	--
RAINY PASS PILLOW	4780	6/01/92	---	5.5s	44.2	20.4
ENTIAT RIVER						
POPE RIDGE PILLOW	3540	6/01/92	---	.0s	.0	.0
WENATCHEE RIVER						
BLEWETT PASS#2PILLOW	4270	6/01/92	---	.0s	.0	.0
FISH LAKE PILLOW	3370	6/01/92	---	.0s	.0	5.0
LYNN LAKE PILLOW	5900	6/01/92	---	23.6s	84.4	43.3
STEVENS PASS PILLOW	4070	6/01/92	---	.0s	14.4	5.7
TROUGH #2 PILLOW	5310	6/01/92	---	.0s	.0	.0
UPPER WHEELER PILLOW	4400	6/01/92	---	.0s	.0	.0
UPPER WHEELER PILLOW	4400	6/01/92	---	.0s	.0	.0
COLOCUM CREEK						
TROUGH #2 PILLOW	5310	6/01/92	---	.0s	.0	.0



SPOKANE RIVER BASIN



June 1, 1992: The June 1 forecasts for summer runoff within the Spokane River Basin are 31% of normal, down from 53% for last month. The forecast is based on a snowpack that is 12% of average and a water year-to-date precipitation value 78% of normal. Precipitation for May was 44% of average. Temperatures in the basin were five degrees above normal during May. Streamflow on the Spokane River was 36% of normal for May. June 1 storage in Coeur d'Alene Lake was 283,200 acre feet, 97% of capacity.

For more information contact your local
Soil Conservation Service office.

SPOKANE RIVER BASIN
Streamflow Forecasts - June 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SPOKANE nr Post Falls (1,2)	JUN-SEP	11.0	168	240	31	310	470	785
	JUN-JUL	11.0	151	215	31	280	420	692
SPOKANE at Long Lake (2)	JUN-JUL	43	178	270	31	360	495	861

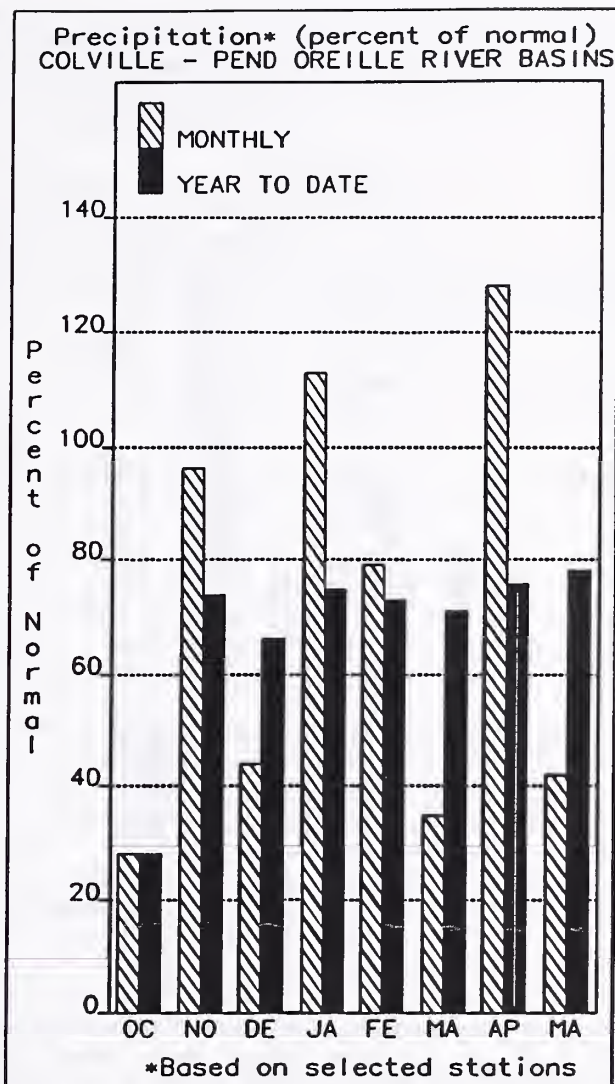
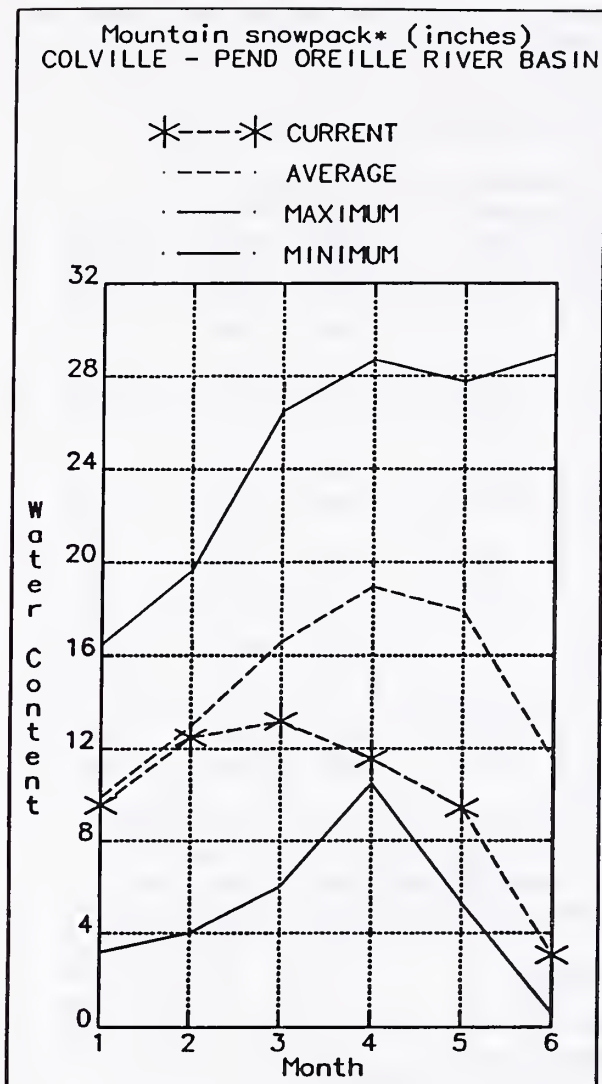
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of May					SPOKANE RIVER BASIN Watershed Snowpack Analysis - June 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	291.2	283.2	296.2	353.9	Spokane River	3	10	12

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



COLVILLE - PEND OREILLE RIVER BASINS:

June 1, 1992: June 1 snow cover is 30% of average on the Pend Oreille and 0% on the Kettle. Snowpack meltout occurred at the Bunchgrass Meadow SNOTEL site on May 21. The average June 1 reading is 16.2 inches. Precipitation during May was 42% of average, bringing the water year-to-date to 72% of normal. May streamflow was 79% of normal on the Pend Oreille River, 100% on the Columbia at the International Boundary, and 67% on the Kettle River. The forecast for the Kettle River streamflow is 40% of normal, the Pend Oreille, 38% down from 55% last month, and the Colville River, 42%, down from 59% of normal for the summer runoff period. Temperatures were three degrees above normal for May.

For more information contact your local
Soil Conservation Service office.

COLVILLE - PEND OREILLE RIVER BASINS
Streamflow Forecasts - June 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
PEND OREILLE bl Box Canyon (1,2)	JUN-SEP	2170	2560	2950	38	3790	5640	7754
	JUN-JUL	1570	1900	2220	34	2980	4660	6543
CHAMOKANE CK nr Long Lake	MAY-AUG	0.1	1.9	3.9	41	5.9	8.7	9.4
	JUL-AUG	1.0	1.3	1.4	42	1.5	1.8	3.3
COLVILLE at Kettle Falls	JUN-SEP	4.2	12.0	17.2	42	22	30	41
	JUN-JUL	2.3	8.6	12.9	43	17.2	24	30
KETTLE nr Laurier	JUN-SEP	166	270	340	40	410	515	851
	JUN-JUL	145	240	300	40	365	455	758
COLUMBIA at Birchbank (1,2)	JUN-SEP	21000	23800	25000	79	26200	29000	31580
	JUN-JUL	15000	17100	18100	79	19100	21200	22910
COLUMBIA at Grand Coulee Dm (1,2)	JUN-SEP	23600	27500	29200	70	30900	34800	41650
	JUN-JUL	16700	19900	21300	68	22700	25900	31370

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of May

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - June 1, 1992

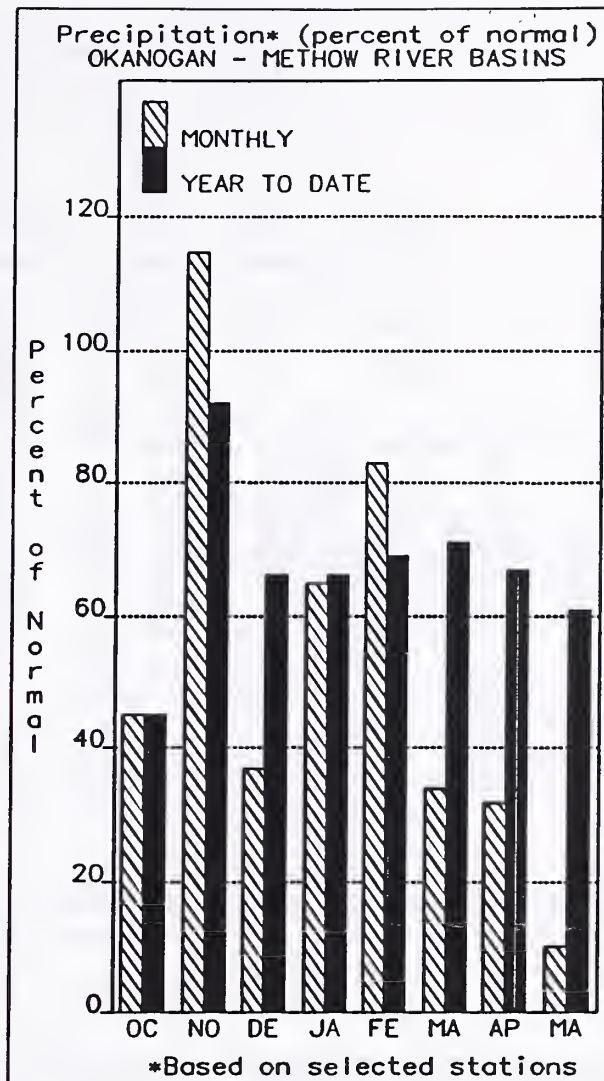
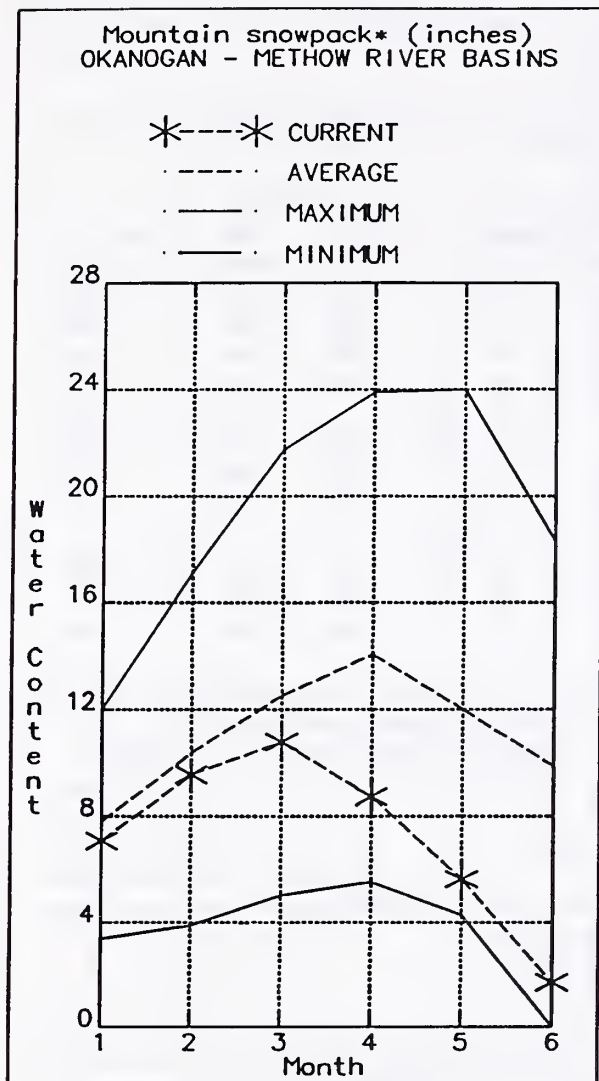
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROOSEVELT	5232.0	3440.5	2630.3	2851.0	Colville River	0	0	0
BANKS	NO REPORT				Pend Oreille River	3	27	30
					Kettle River	2	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



OKANOGAN - METHOW RIVER BASINS:

June 1, 1992: The State Department of Ecology has declared a drought emergency in the Okanogan River Basin this summer. Some emergency aid may be available to water short farmers. Summer runoff forecast for the Okanogan River is 54% of normal, up from 46%; the Similkameen River, 56%, and the Methow River, 54% of normal, down from 68%. Temperatures were three degrees above normal for the month. June 1 snow cover was 24% of average for the Okanogan, and 6% for the Methow Basin. May precipitation in the Okanogan-Methow was 10% of normal, with water year-to-date at 61% of average. May streamflow on the Methow River was 79% of normal, 65% on the Okanogan River, and 68% on the Similkameen River. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 1.6 inches, this site would normally contain 25.3 inches. Storage in the Conconully Reservoirs is 15,200 acre feet, which is 65% of capacity and 84% of June 1 average.

For more information contact your local
Soil Conservation Service office.

OKANOGAN - METHOW RIVER BASINS
Streamflow Forecasts - June 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
SIMILKAMEEN nr Nighthawk (1)	MAY-SEP	560	675	730	56	785	900	1300
	MAY-JUL	520	635	690	57	745	860	1205
	MAY-JUN	485	560	590	58	620	695	1014
OKANOGAN RIVER nr Tonasket (1)	MAY-SEP	310	645	800	54	955	1290	1485
	MAY-JUL	300	595	730	55	865	1160	1328
	MAY-JUN	255	495	600	55	705	945	1095
METHOW RIVER nr Pateros (1)	MAY-SEP	285	405	460	54	515	635	854
	MAY-JUL	250	370	420	53	470	590	786
	MAY-JUN	189	300	350	53	400	510	659

OKANOGAN - METHOW RIVER BASINS
Reservoir Storage (1000 AF) - End of May

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - June 1, 1992

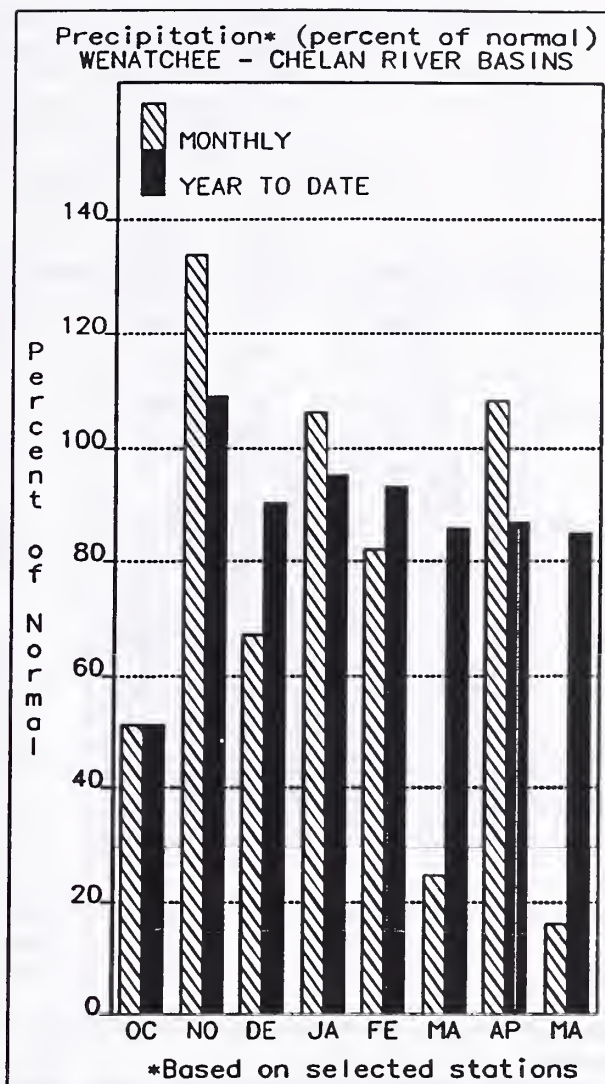
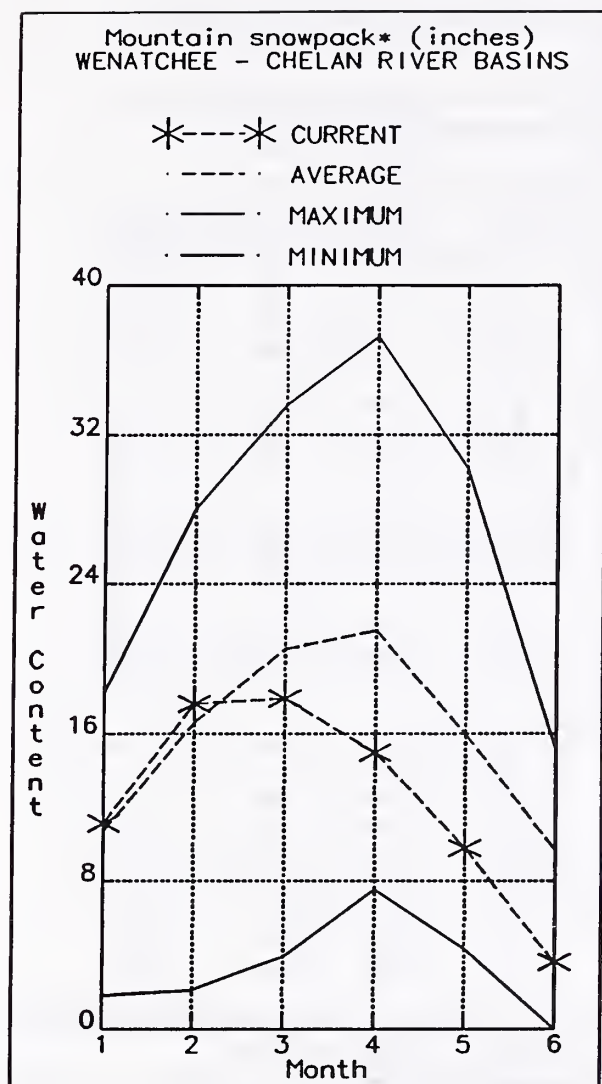
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONCONULLY LAKE (SALMON)	10.5	8.2	10.2	9.0	Okanogan River	6	15	24
CONCONULLY RESERVOIR	13.0	6.9	11.0	9.0	Methow River	2	3	6

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



WENATCHEE - CHELAN RIVER BASINS:



June 1, 1992: June 1 snowpack in the Wenatchee Basin is 44%; the Chelan Basin 42%. The Entiat, Stemilt and Squilchuck show no snow. Reservoir storage in Lake Chelan is 464,300 acre feet or 103% of June 1 average and 69% of capacity. Lyman Lake SNOTEL had the most snow water with 23.6 inches of water; this site would normally have 43.3 inches. Runoff for the Entiat River is forecast to be 75% of normal for the summer. Summer forecasts for the Chelan River are for 76%, Wenatchee River's runoff 72%, and 76% on the Squilchuck-Stemilt. Icicle Creek is forecast to be 68% of normal. Streamflow for May on the Chelan River was 99% of average and the Wenatchee River was 87% of normal. Precipitation during May was 16% of normal in the basin and 85% for the year-to-date.

For more information contact your local
Soil Conservation Service office.

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WENATCHEE - CHELAN RIVER BASINS

Streamflow Forecasts - June 1, 1992

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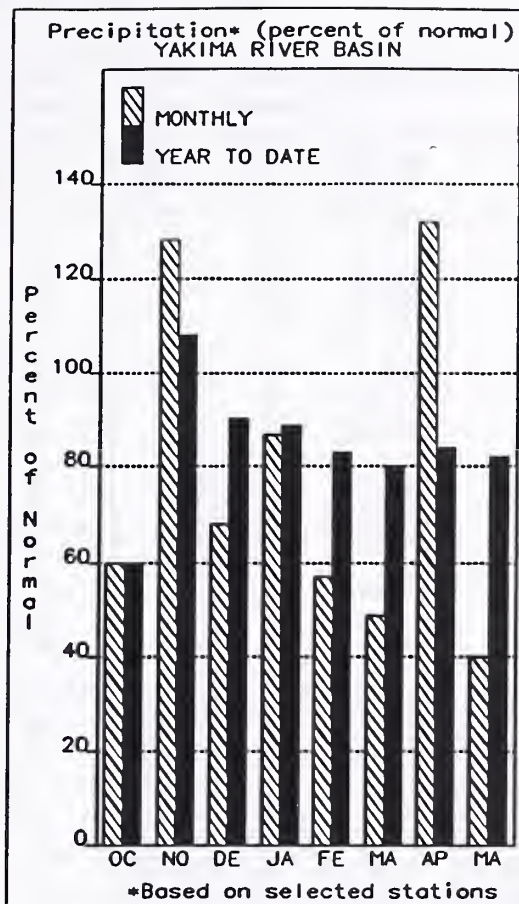
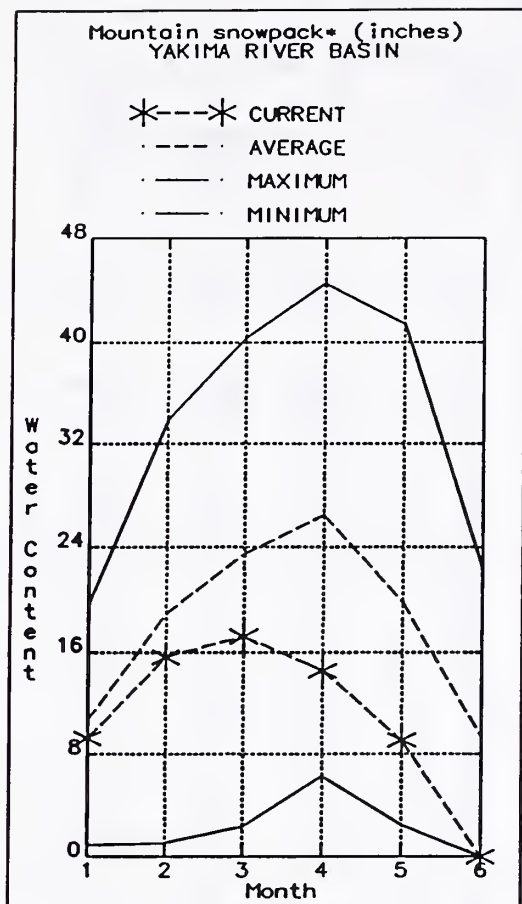
Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER at Chelan (1)	MAY-SEP	585	725	790	76	855	995	1041
	MAY-JUL	510	635	690	76	745	870	905
	MAY-JUN	385	475	520	75	565	655	693
STEHEKIN R. at Stehekin	MAY-SEP	525	570	600	80	630	675	751
	MAY-JUL	435	475	500	80	525	565	625
	MAY-JUN	325	350	370	80	390	415	462
ENTIAT RIVER nr Ardenvoir	MAY-SEP	123	142	155	75	168	187	208
	MAY-JUL	111	128	140	74	152	169	188
	MAY-JUN	87	101	110	73	119	133	150
WENATCHEE R. at Peshastin	MAY-SEP	510	805	1000	70	1200	1490	1428
	MAY-JUL	465	725	900	70	1080	1330	1277
	MAY-JUN	365	565	700	70	835	1040	997
STEMILT nr Wenatchee (miners in)	MAY-SEP	60	87	105	76	123	150	138
ICICLE CREEK nr Leavenworth	APR-SEP	129	200	250	68	300	370	370
	APR-JUL	114	180	225	66	270	335	340
	APR-JUN	87	139	175	65	210	265	270
COLUMBIA R. bl Rock Island Dam (2)	MAY-SEP	36300	40500	43400	69	46300	50500	62910
	MAY-JUL	29100	32600	35000	67	37400	40900	52190
	MAY-JUN	22100	24700	26500	67	28300	30900	39480

WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of May					WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - June 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	464.3	547.4	450.6	Chelan Lake Basin	3	19	42
					Entiat River	1	0	0
					Wenatchee River	5	24	44
					Squilchuck Creek	0	0	0
					Stemilt Creek	1	0	0
					Colockum Creek	1	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.



YAKIMA RIVER BASIN:

June 1, 1992: The Ahtanum drainage has been declared a drought emergency area by the Washington State Department of Ecology. Emergency aid may be available to water short farmers. May precipitation was 40% of normal and 82% for the water year-to-date. The outlook for irrigation water for the summer is fair for those with reservoir storage and poor for the rest. June 1 reservoir storage for the five major reservoirs at 915,700 acre feet, 98% of average. June 1 snowpack is 1% based upon 11 snow courses and SNOTEL readings. June 1 summer streamflow forecasts for the Yakima Basin vary throughout the basin as follows: the Yakima River at Cle Elum, 46%; Naches River, 47%; the Yakima River near Parker, 41%, Ahtanum Creek, 45%; and Tieton River 48%. May streamflows varied with the Yakima River at Parker 51% of normal, 57% on the Yakima near Cle Elum, and 56% on the Naches River. Temperatures were four degree above average for May. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U. S. Bureau of Reclamation's forecast for the total water supply available which includes adjustments for reservoir operation and irrigation return flow.

For more information contact your local
Soil Conservation Service office.

YAKIMA RIVER BASIN
Streamflow Forecasts - June 1, 1992

		<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
=====								
YAKIMA RIVER at Martin (1)	MAY-SEP	28	40	45	42	50	62	107
	MAY-JUL	25	35	40	42	45	55	96
	MAY-JUN	21	30	34	42	38	47	81
YAKIMA RIVER at Cle Elum (2)	MAY-SEP	240	300	340	46	380	440	740
	MAY-JUL	210	265	300	46	335	390	657
	MAY-JUN	177	220	250	46	280	325	546
YAKIMA RIVER nr Parker (2)	MAY-SEP	335	520	650	41	780	965	1580
	MAY-JUL	295	460	570	41	680	845	1390
	MAY-JUN	250	390	485	41	580	720	1182
KACHESS RIVER nr Easton (1)	MAY-SEP	17.0	30	36	39	42	55	92
	MAY-JUL	17.0	28	33	38	38	49	86
	MAY-JUN	15.0	25	29	39	33	43	74
CLE ELUM RIVER nr Roslyn (1)	MAY-SEP	109	151	170	45	189	230	378
	MAY-JUL	99	136	153	45	170	210	340
	MAY-JUN	79	110	124	45	138	169	276
BUMPING RIVER nr Nile (1)	MAY-SEP	33	50	57	48	64	81	118
	MAY-JUL	29	44	51	48	58	73	107
	MAY-JUN	25	37	42	48	47	59	87
AMERICAN RIVER nr Nile	MAY-SEP	36	44	49	48	54	62	102
	MAY-JUL	32	39	44	48	49	56	92
	MAY-JUN	27	32	36	48	40	45	75
TIETON RIVER at Tieton (1)	MAY-SEP	54	84	98	48	112	142	204
	MAY-JUL	44	69	80	48	91	116	167
	MAY-JUN	33	52	61	48	70	89	128
WACHES RIVER nr Waches (2)	MAY-SEP	220	280	320	47	360	420	687
	MAY-JUL	520	575	610	100	645	700	610
	MAY-JUN	166	210	240	47	270	315	506
AHTANUM CREEK nr Tappico (2)	MAY-SEP	8.5	13.6	17.0	45	20	26	38
	MAY-JUL	7.7	12.2	15.3	45	18.4	23	34
	MAY-JUN	6.3	10.0	12.6	45	15.2	18.9	28

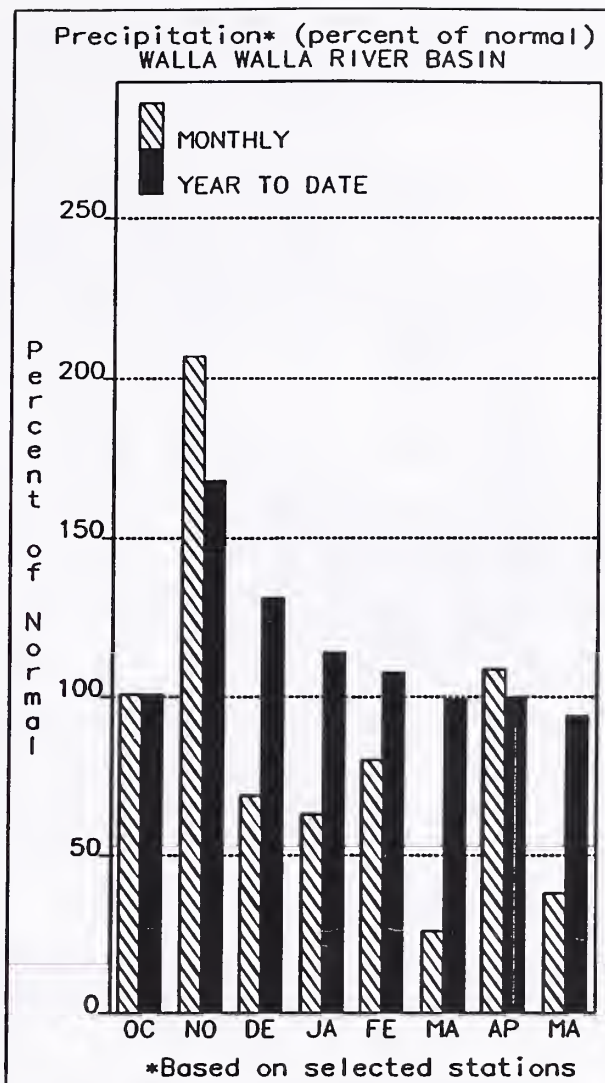
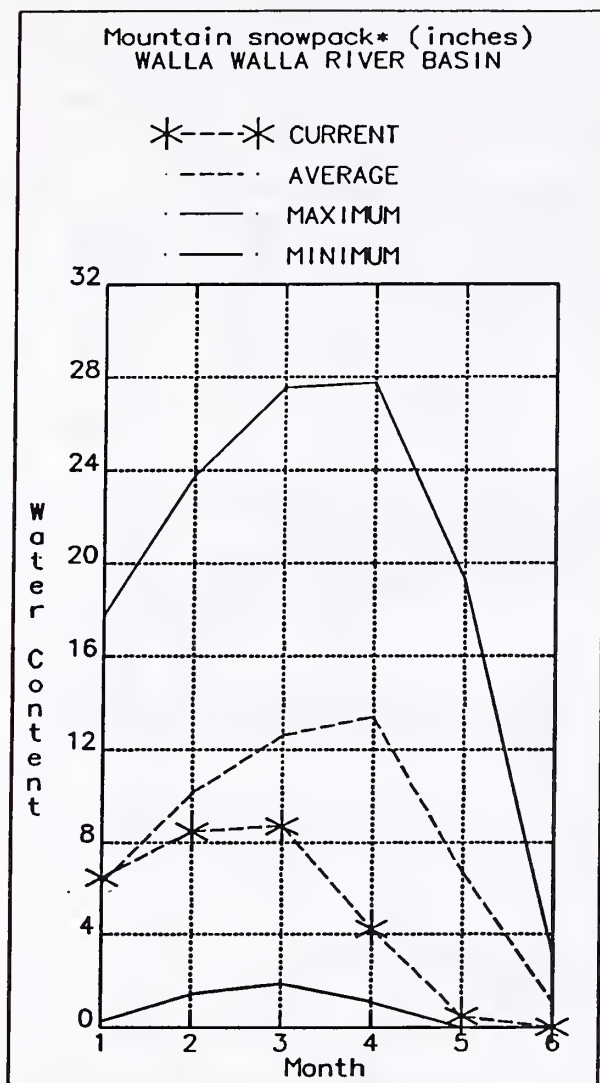
YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of May					YAKIMA RIVER BASIN Watershed Snowpack Analysis - June 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHULUS	157.8	105.5	153.5	144.0	Yakima River	11	1	1
KACHESS	239.0	221.1	236.0	218.0	Ahtanum Creek	1	0	0
CLE ELUM	436.9	383.3	430.4	378.0				
BUMPING LAKE	33.7	35.4	31.6	27.0				
RIMROCK	198.0	170.4	195.8	167.0				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



WALLA WALLA RIVER BASIN:



June 1, 1992: May precipitation was 38% of average, bringing the water year-to-date precipitation to 94% of normal. The forecast is for 34% of average streamflow in the Walla Walla River for the coming summer, the Grande Ronde, 18%, the lowest in the state; and 30% for Mill Creek. May streamflow was 11% of normal on the Walla Walla River, 49% for the Snake River and 40% for the Grande Ronde River near Troy. June 1 snowpack is at 0%, down from 7% last month. Temperatures were five degrees above average for May.

For more information contact your local
Soil Conservation Service office.

WALLA WALLA RIVER BASIN
Streamflow Forecasts - June 1, 1992

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90%	70%	50% (Most Probable)		30%	10%	30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
MILL CREEK at Walla Walla	MAY-SEP	0.1	1.0	2.3	31	3.6	5.5	7.5
	MAY-JUL	0.1	0.9	2.2	30	3.5	5.4	7.3
	MAY-JUN	0.1	0.9	2.1	30	3.3	5.1	7.1
SF WALLA WALLA nr Milton Freewater	MAY-JUL	13.1	16.4	18.7	51	21	24	37

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - June 1, 1992

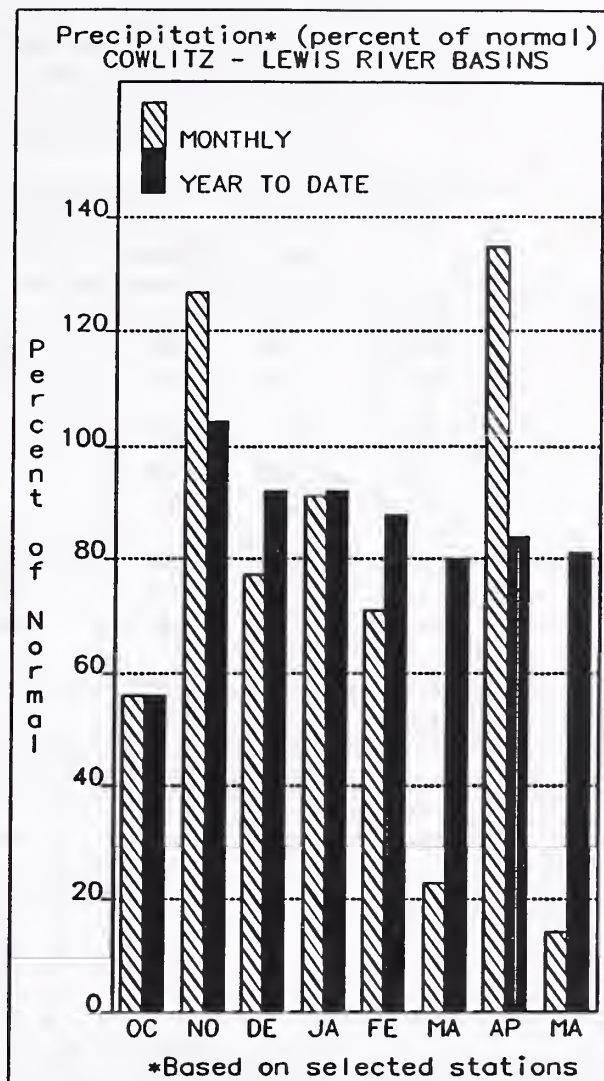
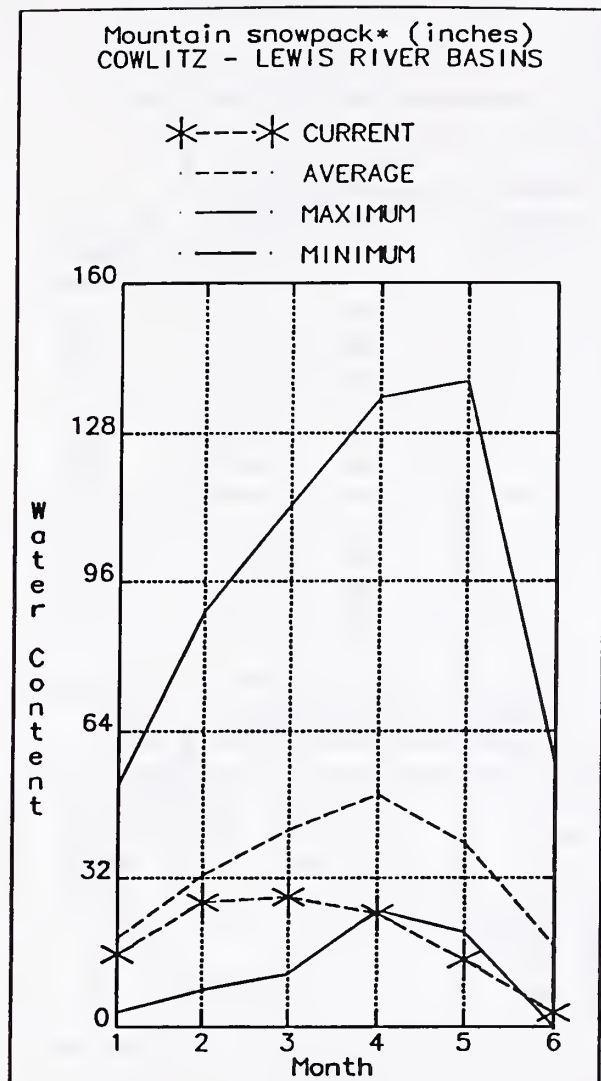
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Mill Creek	1	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



COWLITZ - LEWIS RIVER BASINS:

June 1, 1992: May precipitation was 14% of normal, bringing the water year-to-date precipitation to 81% of average. June 1 snow cover for the Cowlitz-Lewis River Basin is 19%, down from 37% last month. The Paradise Park SNOTEL contained the largest water content for the basin with 18.0 inches of water. Normal June 1 water content is 48.1 inches. Forecasts for summer runoff in the Lewis River are 42%, and for the Cowlitz River, 51%. May streamflow on the Cowlitz River was 53% of average, and 40% on the Lewis River. Temperatures were six degrees above normal for May.

For more information contact your local
Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS
Streamflow Forecasts - June 1, 1992

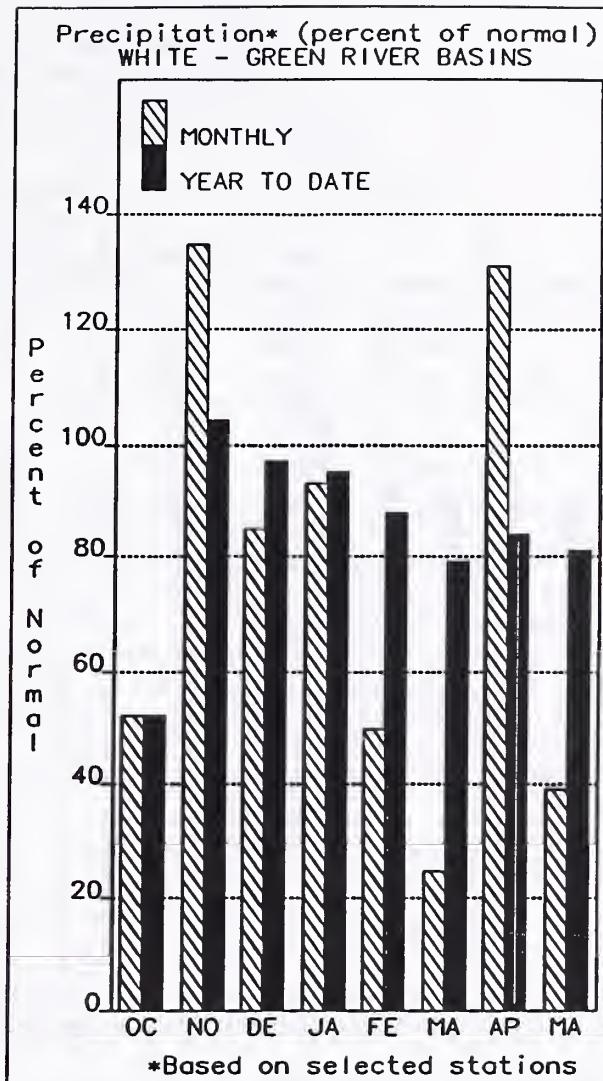
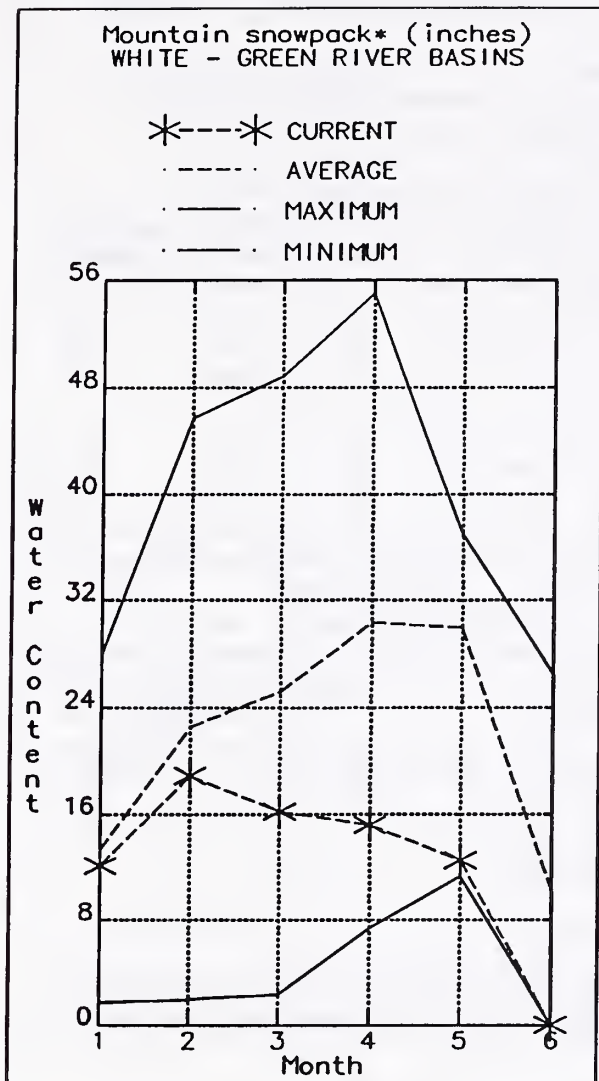
Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
LEWIS RIVER at Ariel (2)	MAY-SEP	148	275	360	42	445	575	848
	MAY-JUL	116	220	290	42	360	465	696
	MAY-JUN	96	182	240	42	300	385	578
COWLITZ R. bl Mayfield Dam (2)	MAY-SEP	15.0	465	780	51	1100	1560	1531
	MAY-JUL	13.0	395	660	51	925	1320	1292
	MAY-JUN	10.0	315	530	51	745	1060	1038
COWLITZ R. at Castle Rock (2)	MAY-SEP	20	565	970	48	1370	1970	2021
	MAY-JUL	17.0	465	800	48	1140	1630	1679
	MAY-JUN	14.0	380	650	48	920	1320	1349

COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of May					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - June 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Cowlitz River	6	17	23
					Lewis River	4	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.



WHITE - GREEN RIVER BASINS:



June 1, 1992: Low water supplies are foreseen by the City of Seattle for the coming summer, with water rationing already in effect. Summer runoff is forecasted to be 53% on the Green and Cedar Rivers. June 1 snowpack was 4% of normal in the White River and 0% in the Green River. Meltout of snow at the Stampede Pass SNOTEL, occurred on May 12. Normal June 1 water content is 15.0 inches. May precipitation was 39% of normal, bringing the water year-to-date to 81% of average. Temperatures were five degrees above average for May.

For more information contact your local
Soil Conservation Service office.

WHITE - GREEN RIVER BASINS
Streamflow Forecasts - June 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GREEN R bl Howard Hanson Dam (2)	MAY-SEP	70	91	105 53		119	140	198
	MAY-JUL	60	78	90 53		102	120	170
	MAY-JUN	52	68	78 53		88	104	147
CEDAR RIVER nr Cedar Falls	MAY-SEP	22	29	34 53		39	47	64
	MAY-JUL	19.0	26	30 54		35	41	56
	MAY-JUN	16.0	21	25 53		29	34	47

WHITE - GREEN RIVER BASINS
Reservoir Storage (1000 AF) - End of May

WHITE - GREEN RIVER BASINS
Watershed Snowpack Analysis - June 1, 1992

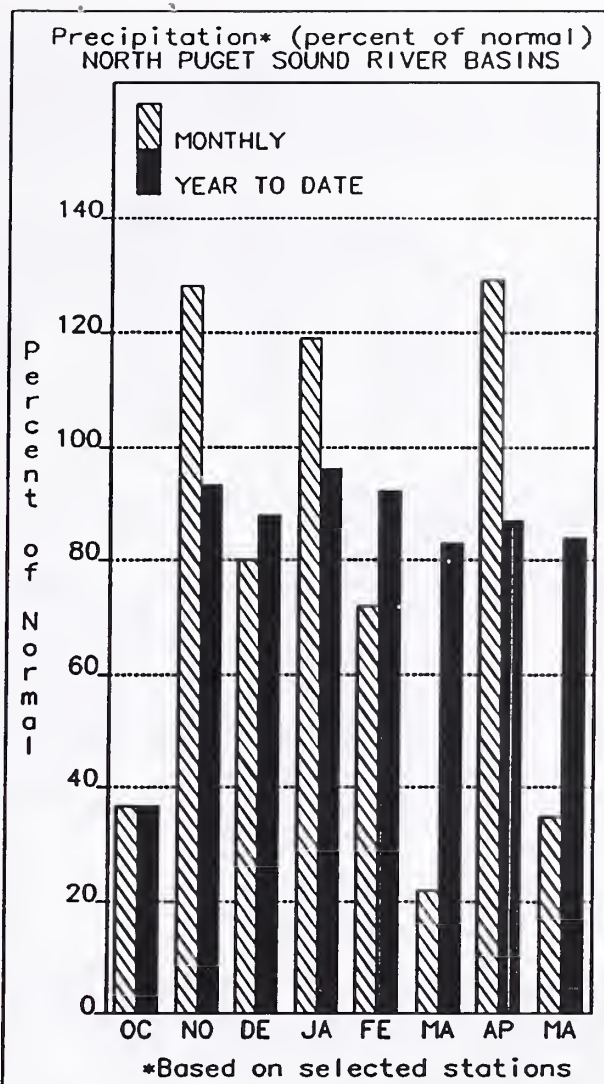
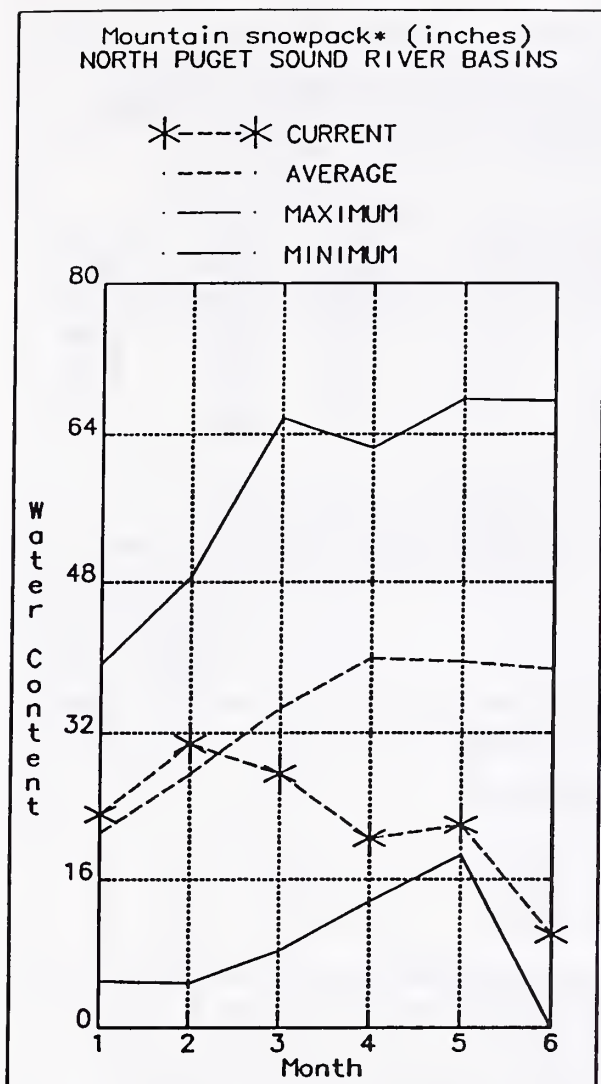
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					White River	2	2	4
					Green River	3	0	0
					Cedar River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



NORTH PUGET SOUND RIVER BASINS:

June 1, 1992: Forecast for the Skagit River streamflow is 74% of normal for the spring and summer period. May streamflow in the Skagit River was 79% of average. June 1 snow cover in the Skagit Basin is 36% of normal. Rainy Pass SNOTEL at elevation 4780 feet, has 5.5 inches of water content; normal June 1 water content is 20.4 inches. June 1 reservoir storage is above average, with Ross Lake Reservoir at 106% of normal and 79% of capacity. Precipitation for May was 35% of average with a water year-to-date at 84% of normal. May temperatures were five degrees above normal.

For more information contact your local
Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS
Streamflow Forecasts - June 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SKAGIT RIVER at Newhalem (2)	MAY-SEP	1140	1330	1450	74	1570	1760	1963
	MAY-AUG	1060	1230	1350	74	1470	1640	1826
	MAY-JUL	940	1090	1190	74	1290	1440	1608
	MAY-JUN	660	790	880	74	970	1100	1188

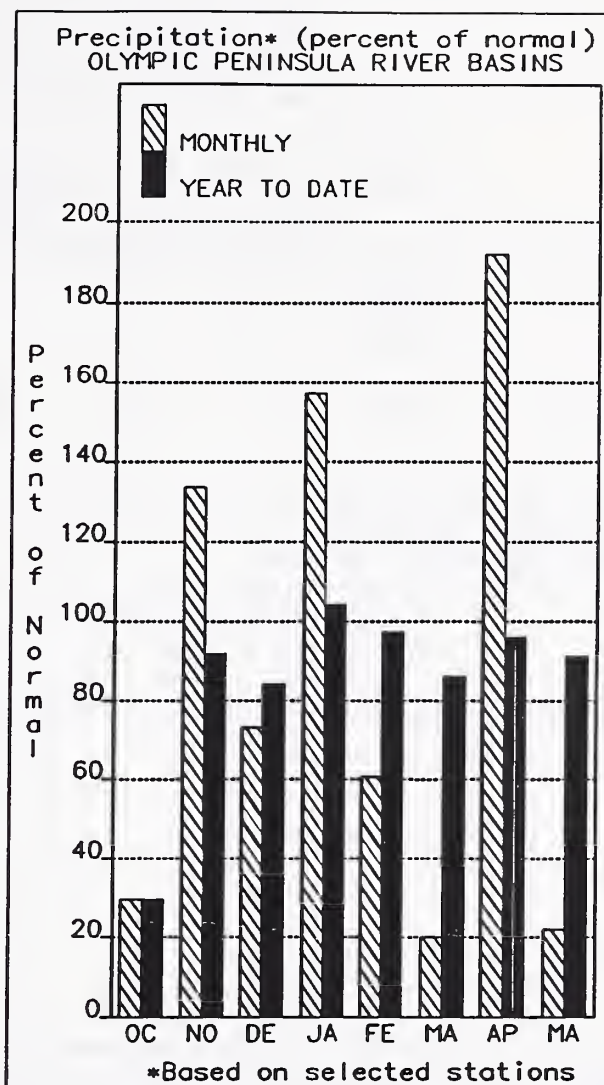
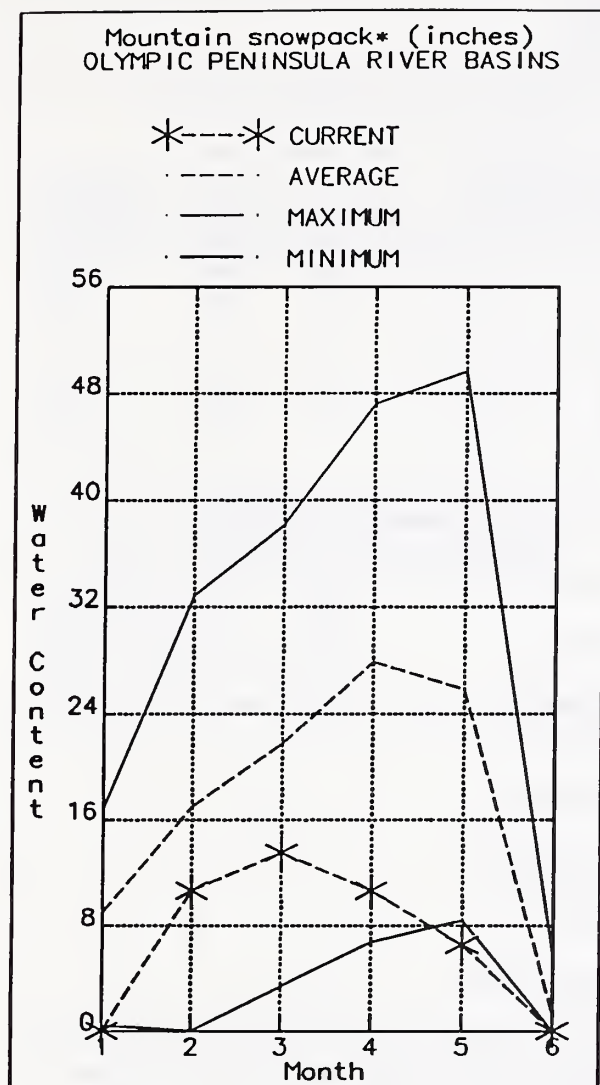
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of May					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - June 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1099.3	864.3	1033.9	Snoqualmie River	1	0	0
DIABLO RESERVOIR	90.6	87.2	89.0	86.1	Skykomish River	2	0	0
GORGE RESERVOIR	NO REPORT				Skagit River	5	17	36
					Baker River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



OLYMPIC PENINSULA RIVER BASINS:



June 1, 1992: May precipitation was 22% of average, with water year-to-date precipitation accumulation at 91% of normal. No June 1 snow courses are read in the Olympic Basin. June forecasts for streamflow in the basin are for 61% of average on the Dungeness River and 59% on the Elwha River. The Big Quilcene can expect much below normal runoff this summer. The Mount Crag SNOTEL near Quilcene showed no water content on June 1, last year it was bare also. Temperatures were three degrees above normal for May.

For more information contact your local
Soil Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS
Streamflow Forecasts - June 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
=====		=====		=====		=====		=====
DUNGENESS RIVER nr Sequim	MAY-SEP	62	76	85	61	94	108	140
	MAY-JUL	50	61	68	61	75	86	112
	MAY-JUN	32	41	48	61	55	64	79
ELWHA RIVER nr Port Angeles	MAY-SEP	174	220	250	59	280	325	427
	MAY-JUL	139	175	200	58	225	260	342

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of May

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - June 1, 1992

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Elwha River	0	0	0
					Morse Creek	0	0	0
					Dungeness River	0	0	0
					Quilcene River	0	0	0
					Wynoochee River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

